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W. T. G. MORTON'S
Memoir
ON
Sulphuric Ether
1847

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MORTON'S MEMOIR

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Note: A 26-page reprint issued by the Historical Library, Yale University School of Medicine, in recognition of the ether centennial and also to offset some of the unnecessarily harsh things said of it by Raper in his *Man against pain* (1945, pp. 295-297).

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A MEMOIR
to the Academy of Sciences at Paris
on a New Use of
SULPHURIC ETHER

By W. T. G. MORTON
of Boston in the U.S.A.

Presented by M. ARAGO in the Autumn
of 1847

With a Foreword by
JOHN F. FULTON

HENRY SCHUMAN · NEW YORK
1946

The Southworth-Anthoensen Press, Portland, Maine

FOREWORD

DURING the welter of charge and counter-charge that followed the introduction of surgical anesthesia several documents appeared that have enduring importance not only in the story of anesthesia but in the history of modern medicine. One was W. T. G. Morton's Remarks on the proper mode of administering sulphuric ether by inhalation which was issued in Boston in September 1847 eleven months after Morton had first given ether for a major operation. This brochure has become extremely rare but the text is readily available since it has been several times reprinted, i.e., by C. N. B. Camac in his Epoch-making contributions to medicine (1907), and by Logan Clendening in his Source book of medical history (1942).

More interesting for those who wish to trace the steps that have led to a great discovery is Morton's celebrated letter to the Academy of Sciences at Paris for it gives the background of the discovery and also stands as a calm and dignified statement of his claims in relation to those of Wells and Jackson. Since it has never, as far as I am aware, been separately reprinted, it seems appropriate to do so on the occasion of the ether centennial.

Morton, who was born on 9 August 1819, had just turned twenty-seven when he gave his first public demonstration of ether anesthesia, and he had just completed drafting this memoir on his twenty-eighth birthday. Between its lines one can read something of the refreshing zeal and enthusiasm of youth, a little of its impatience too, and at the end there is a note of bitter sarcasm; but who at his age, having largely abandoned

his practice for a year to explore the huge ramifications of a great disclosure and having thus impoverished himself, could have felt otherwise?

Morton decided to prepare this memoir when he discovered that Dr. Charles T. Jackson, his preceptor in Boston, had apparently broken faith by twice sending surreptitiously to the Academy of Sciences at Paris memoranda claiming full credit for the discovery of surgical anesthesia (in November 1846 and again in March 1847). First published at Paris in November 1847 as a memoir in French, Morton's statement was issued in English in Littell's Living Age on 18 March 1848 as an appendix to an authorized history of the ether discovery compiled by the trustees of the Massachusetts General Hospital. Morton had secured good legal advice in preparing his text and had had the approval of Drs. H. J. Bigelow, George Hayward, and others of the Massachusetts General Hospital staff. This Memoir, therefore, represents the most carefully considered of all of Morton's statements in the ether controversy and is basic to an understanding of the issues involved. The Appendix to which Morton occasionally alludes in the text was included in the original French edition of the memoir but was not included when reprinted in Littell's Living Age. It is therefore omitted here.

JOHN F. FULTON

Yale University,
September 1946.

MORTON'S MEMOIR

A MEMOIR

TO THE ACADEMY OF SCIENCES AT PARIS

ON A NEW USE OF

SULPHURIC ETHER

WILLIAM T. Green Morton, of Boston, in the United States of America, surgeon-dentist, respectfully asks the attention of the Academy of Sciences to the subjoined memoir, intended to present a history of the course pursued by him which resulted in the demonstration of the great truth that the inhaling of the vapor of sulphuric ether, highly rectified, will produce insensibility to pain, in operations upon the human body.

He intends that this memoir shall state such facts only as illustrate the scientific character of the discovery, and shall not go into questions of personal controversy; but as the manner in which, and the person by whom, this discovery was made, have become matter of disputation, and as evidence on these points has been brought to the attention of the Academy in various ways, by other persons, he takes the liberty to subjoin, in an appendix, certain evidence, taken for a different purpose, which he desires to place at the disposal of the Academy, to be used by them in such a manner as they shall see fit, or not to be used at all, as their usage or discretion shall determine.

MEMOIR.

In the summer of 1844, being in the practice of dentistry, and desirous to improve myself in chemical and medical knowledge, I studied in the office of Dr. Charles T. Jackson, of Boston, and in order to employ my time to the utmost advantage, I resided in his family. One day, in casual conversation upon my profession of dentistry, I spoke of the operation of destroying the nerve of a tooth, and remarked that there was always doubt whether the tooth could be restored to usefulness, inasmuch as the arsenic produced an irritation, and left a soreness often permanent. Dr. Jackson said, in a humorous manner, that I must try some of his tooth-ache drops, and proceeded to tell me that at a time when he practised medicine, he occasionally extracted teeth for particular patients, and that in one instance, a patient who could not summon courage for the operation, asked him to apply something to alleviate the pain. He applied ether, and with success, for a few days afterwards a friend of this patient called to obtain some of the "tooth-ache drops," as he called them; but Dr. Jackson, not wishing to be troubled with dental business, told him he had none. Dr. Jackson then added, that as this ether might be applied with advantage to sensitive teeth, he would send me some. The conversation then turned upon the effect of ether upon the system, and he told me how the students at Cambridge used to inhale sulphuric ether from their handkerchiefs, and that it intoxicated them, making

them reel and stagger. He gave no further intimation of the effect of ether, or of the manner of applying it. I may add that Dr. Jackson has confirmed my account of this conversation, in his own statement to Dr. Gould.

In a few days after this conversation, Dr. Jackson sent me a bottle of chloric ether, highly rectified, as he had offered. At the same time he sent a bottle to two other dentists of high respectability in Boston. I made an experiment with this ether in destroying the sensibility of a valuable tooth of a patient, Miss ——, by direct application, telling her that the operation would be slow. I was obliged to apply it several times, but in the end the sensibility seemed to be removed, and the tooth is now, to my knowledge, in a useful condition.

About this time the wife and aunt of Dr. Jackson were under my treatment for dental purposes, and it was necessary to extract teeth in each case, the operation being painful and the ladies showing an unusual degree of sensitiveness. The last named lady, in particular, before the extracting of each tooth, remained several hours in the operating chair, unable to summon courage to endure the operation, and begging to be mesmerized, or that I would give her something to make her insensible. Dr. Jackson was present and made efforts to encourage the lady, but did not suggest any mode of producing insensibility. *His suggestions had not gone beyond the direct application of ether, in the same manner that laudanum and other narcotics have always been applied to sensitive teeth.*

The successful application I had made of the ether in destroying the sensibility of a tooth, together with what Dr. Jackson told me of its effects when inhaled by the students at college, awakened my attention, and having free access to Dr. Jackson's books, I began to read on the subject of its effects upon the animal system. I became satisfied that there was nothing new or particularly dangerous in the inhaling of ether, that it had long been the toy of professors and students, known as a powerful anti-spasmodic, anodyne and narcotic, capable of intoxicating and stupefying, when taken in sufficient quantity. I found that even the apparatus for inhaling it was described in some treatises, but in most cases it was described as inhaled from a saturated sponge or handkerchief. Having some of the ether left which Dr. Jackson had sent me, I inhaled it from the handkerchief, but there was not enough to produce a greater effect than exhilaration followed by headache.

While investigating this subject I was taken quite ill, and it being the middle of the summer, I was advised by my physician to go into the country. I took with me Dr. Jackson's library, and obtained in other ways, several books treating on this and other subjects. I spent two months at the residence of my father-in-law, in Connecticut. While there I procured ether from the druggist's, and made experiments upon birds and other animals, endeavoring to get them under the effect of inhalation from it. These experiments produced no satisfactory result, and they being known among my friends, I was

mortified and vexed, and bottled up the subjects, where they remain to this day.

In the autumn I returned to Boston, and finding that my business, owing to its interruption, required my constant attention, I was not able to pursue the investigation at that time.

In the course of the winter (1844-5) Dr. Horace Wells, of Hartford, Conn., a dentist, and formerly my partner, came to Boston, and desired me to aid him in procuring an opportunity to administer the nitrous oxide gas, which he said he believed would destroy or greatly alleviate pain under surgical operations. I readily consented, and introduced him to Dr. George Hayward, an eminent surgeon, who offered to permit the experiment, but as the earliest operation was not to be performed under two or three days, we did not wait for it, but went to Dr. Warren, whom we found engaged with his class. He told us that his students were preparing to inhale it that evening, for sport, and offered to announce the proposal to them, and ask them to meet us at the college. In the evening Dr. Wells and myself went to the hall, and I took my instruments. Dr. Wells administered the gas, and extracted a tooth, but the patient screamed from pain, and the spectators laughed and hissed. The meeting broke up, and we were looked upon as having made ourselves very ridiculous. I saw nothing more of Dr. Wells, but he left my instruments at my office very early the next morning, and went directly home. In July, being again in Connecticut, I called on Dr. Wells, and we spent some

time in adjusting our former partnership accounts. He had then given up dentistry, and was engaged in conducting an exhibition of birds, which he said insured him better health. I went with him to the office of Dr. Riggs, where I spoke of the gas, and asked them to give some to me; but Dr. Wells gave me to understand that he had abandoned the experiment, thinking it could have no practical value.

In the autumn of 1845, I returned to my business, which had now become almost exclusively mechanical dentistry, or plate work, requiring me often to extract a great number of teeth at a time. Many of my patients suffered extremely, and some were obliged, as is the experience of every dentist, to postpone or abandon the supplying full sets of teeth. I had, therefore, everything to call my attention to the destroying or mitigating of pain under these operations, and great motive to induce me to follow up the subject. Finding that when closed up in a hollow tooth, and sealed with wax, ether would gradually destroy the sensibility of the part, I reasoned that perhaps when inhaled it might destroy or greatly alleviate sensibility to pain generally.

In the spring of 1846, Thomas R. Spear came to study with me, and hearing me converse upon the subject, he said he had inhaled ether at the Lexington Academy, where he was educated, and described to me its effects. This increased my interest in the subject, and I determined, as soon as the pressure of the spring business was over, to devote myself to it. In the meantime I tried

an experiment upon a water spaniel, inserting his head in a jar having sulphuric ether at the bottom. This was done in the presence of two persons, at my house in West Needham, where I reside during the summer months. After breathing the vapor for some time the dog completely wilted down in my hands. I then removed the jar. In about three minutes he aroused, yelled loudly, and sprang some ten feet, into a pond of water.

Immediately after this experiment, I waited on Dr. Granville G. Hayden, a young dentist, told him my purpose, and made an agreement with him to come to my office and take charge of my business, that I might devote myself more exclusively to this subject. The agreement was drawn by R. H. Dana, Jr., Esq., to whose letter in the appendix I take the liberty to refer the Academy in this connection. As soon as Dr. Hayden became acquainted with my business, I began to devote myself to my experiments. I inhaled some chloric ether and morphine, the effect of which was drowsiness followed by lassitude and headache.

Early in August I asked Dr. Hayden to procure me a four-ounce phial of sulphuric ether from Mr. Burnett, a druggist much relied upon by chemists. He did so, and I tried to induce him to take it. As he declined, I took half of it into the country to try again on my dog. Just as I had got it ready, the dog sprang and threw over the jar. I felt vexed, and resolved to take it myself, and did so, the next day, at my office. I inhaled from my handkerchief all the ether that was left, but was not completely lost,

yet thought myself so far insensible that I believed that a tooth could have been drawn with but little pain or consciousness. I was unwilling to send to Burnett's again for the same article, he being a neighbor, and his young men well acquainted with mine, lest the knowledge of my experiments should get abroad. I accordingly sent a student, William P. Leavitt, to druggists in a different part of the city, Brewers, Stevens and Co., a firm in excellent standing, with directions to get sulphuric ether. After some persuasion I induced Spear, who had taken it at school, to inhale it. He did so, and became so far insensible as to drop the handkerchief, and seemed very drowsy and torpid. As this passed off he became excited and furious, so that he had to be held down in the chair; but this subsided, and on coming to he expressed himself delighted with his sensations. Leavitt then took it, with much the same effect. I was much discouraged by these attempts. The effects produced were not such as I sought for, nor were the young men affected in the same manner that I had been, and as I observed the dog to be. They were much more excited and less insensible. Yet I cannot help remarking, in this connection, that had this sulphuric ether been pure and highly rectified, I should have demonstrated its effects then, instead of at the subsequent period in September. This ether has since been analyzed, as appears by the affidavits in the appendix, and found to contain a large proportion of alcohol, sulphur acids, and other impurities.

This experiment was early in August; and it being hot

weather, and I being somewhat out of health, I went into the country, and abandoned the experiments until the middle of September. With the autumn and the restoration of health, my ambition led me to resume my experiments; and I mentioned to Dr. Hayden that I feared there was so much difference in the qualities of ether, that in so delicate a matter there would be great difficulty in bringing about any generally useful and reliable results.

Thinking that a surer effect might be produced by inhaling the ether through some apparatus; I called repeatedly on Mr. Wightman, a philosophical instrument-maker, for the purpose of procuring or contriving an apparatus. While examining his bags for inhaling nitrous oxide gas, the thought struck me that I could put the ether into one of these, and by making an opening to be closed by a valve, for the admission of atmospheric air, could convert it into an inhaling apparatus. Upon second thought I had an impression that ether would dissolve India rubber, and put the question to Mr. Wightman. He thought it would. I then put the same question as to oil silk. He said he did not know, but advised me to consult a chemist, and named Dr. Jackson. I took from Mr. Wightman a glass tunnel, purchased an India rubber bag on my way, and returned to my office. I then sent Leavitt to Dr. Gray, a chemist, to ask the simple question whether ether would dissolve India rubber. He returned, saying that Dr. Gray was not in. In the meantime I became satisfied that the bottle and glass I had were not

large enough for my purpose, and not wishing to go to unnecessary expense, I said to Dr. Hayden that I would borrow a gas-bag from Dr. Jackson's laboratory. He then suggested to me to ascertain from Dr. Jackson something as to the different qualities and preparations of ether, with which he said chemists were always familiar. I approved of the suggestion, but feared Dr. Jackson might guess what I was experimenting upon, and forestall me. I went to Dr. Jackson's therefore, to procure a gas-bag, also with the intention of ascertaining something more accurately as to the different preparations of ether, if I should find I could do so without setting him upon the same track of experiment with myself. I am aware that by this admission I may show myself not to have been possessed by the most disinterested spirit of philosophic enthusiasm, clear of all regard for personal rights or benefits; but it is enough for me to say that I felt I had made sacrifices and run risks for this object, that I believed myself to be close upon it, yet where another, with better opportunities for experimenting, availing himself of my hints and labors, might take the prize from my grasp.

I asked Dr. Jackson for his gas-bag. He told me it was in his house. I went for it, and returned through the laboratory. He said, in a laughing manner, "Well, Doctor, you seem to be all equipped, minus the gas." I replied, in the same manner, that perhaps there would be no need of having any gas, if the person who took it could only be made to believe there was gas in it, and alluded to the

story of the man who died from being made to believe that he was bleeding to death, there being in fact nothing but water trickled upon his leg; but I had no intention whatever of trying such a trick. He smiled and said that was a good story, but added, in a graver manner, that I had better not attempt such an experiment, lest I should be set down as a greater humbug than Wells was with his nitrous oxide gas. Seeing that here was an opportunity to open the subject, I said, in as careless a manner as I could assume, why cannot I give the ether gas? He said that I could do so, and spoke again of the students taking it at Cambridge. He said the patient would be dull and stupefied, that I could do what I pleased with him, that he would not be able to help himself. Finding the subject open, I made the inquiries I wished as to the different kinds and preparations of ether. He told me something about the preparations, and thinking that if he had any it would be of the purest kind, I asked him to let me see his. He did so, but remarked that it had been standing for some time, and told me that I could get some highly rectified at Burnett's. As I was passing out, Dr. Jackson followed me to the door, and told me that he could recommend something better than the gas-bag, to administer the ether with, and gave me a flask with a glass tube inserted in it.

I procured the ether from Burnett's, and taking the tube and flask, shut myself up in my room, seated in the operating chair, and commenced inhaling. I found the

ether so strong that it partially suffocated me, but produced a decided effect. I then saturated my handkerchief and inhaled it from that. I looked at my watch and soon lost consciousness. As I recovered, I felt a numbness in my limbs with a sensation like nightmare, and would have given the world for some one to come and arouse me. I thought for a moment I should die in that state, and that the world would only pity or ridicule my folly. At length I felt a slight tingling of the blood in the end of my third finger, and made an effort to touch it with my thumb, but without success. At a second effort, I touched it, but there seemed to be no sensation. I gradually raised my arm and pinched my thigh, but I could see that sensation was imperfect. I attempted to rise from my chair, but fell back. Gradually I regained power over my limbs and full consciousness. I immediately looked at my watch, and found that I had been insensible between seven and eight minutes.

Delighted with the success of this experiment, I immediately announced the result to the persons employed in my establishment, and waited impatiently for some one upon whom I could make a fuller trial. Toward evening, a man, residing in Boston, whose certificate is in the appendix, came in suffering great pain and wishing to have a tooth extracted. He was afraid of the operation and asked if he could be mesmerized. I told him I had something better, and saturating my handkerchief, gave it to him to inhale. He became unconscious almost immediately. It was dark, and Dr. Hayden held the lamp,

while I extracted a firmly rooted bicuspid tooth. There was not much alteration in the pulse, and no relaxation of the muscles. He recovered in a minute, and knew nothing of what had been done to him. He remained for some time talking about the experiment, and I took from him a certificate. This was on the 30th of Sept., 1846. This I consider to be the first demonstration of this new fact in science. I have heard of no one who can prove an earlier demonstration. If any one can do so, I yield to him the point of priority in time.

I will make a single remark upon the subject of my interview with Dr. Jackson. It is not necessary to go into the question of the origin of all ideas. I am ready to acknowledge my indebtedness to men and to books for all my information upon this subject. I have got here a little and there a little. I learned from Dr. Jackson, in 1844, the effect of ether directly applied to a sensitive tooth, and proved, by experiment, that it would gradually render the nerve insensible. I learned from Dr. Jackson, also, in 1844, the effect of ether when inhaled by the students at college, which was corroborated by Spear's account, and by what I read. I knew of Dr. Wells' attempt to apply nitrous oxide gas for destroying pain under surgical operations. I had great motives to destroy or alleviate pain under my operations, and endeavored to produce such a result by means of inhaling ether, inferring that if it would render a nerve insensible, directly applied, it might, when inhaled, destroy or greatly alleviate sensibility to pain generally. Had that ether that I

tried on the 5th of August been pure, I should have made the demonstration then. I further acknowledge that I was subsequently indebted to Dr. Jackson for valuable information as to the kinds and preparations of ether, and for the recommendation of the highly rectified from Burnett's as the most safe and efficient. But my obligation to him hath this extent, no further. All that he communicated to me I could have got from other well informed chemists, or from some books. He did not put me upon the experiments; and when he recommended the highly rectified sulphuric ether, *the effect he anticipated was only that stupefaction which was not unknown, and he did not intimate in any degree a suspicion of that insensibility to pain which was demonstrated, and astonished the scientific world.*

As soon as the man whose tooth I extracted left my office, I consulted Dr. Hayden as to the best mode of bringing out the discovery. We agreed it was best to announce it to the surgeons of the hospital; but as some time would elapse before an operation, I thought it best to procure some assurance which would induce my patients to take it. I therefore called upon the man who had taken it, and found him perfectly well. Thence I went to Dr. Jackson, told him what I had done, and asked him to give me a certificate that it was harmless in its effects. This he positively refused to do. I then told him I should go to the principal surgeons and have the question thoroughly tried. *I then called on Dr. Warren, who promised me an early opportunity to try the experiment, and soon after I received the invitation inserted in the appendix.*

In the meantime, I had made several additional experiments in my office, with various success. I administered it to a boy, but it produced no other effect than sickness, with vomiting, and the boy was taken home in a coach, and pronounced by a physician to be poisoned. His friends were excited, and threatened proceedings against me. A notice of my successful experiment having, without my knowledge, got into the papers; several persons called, wishing to have it administered. I gave it to a lady, but it produced no other effect than drowsiness, and when breathed through the apparatus named by Dr. Jackson, it produced suffocation. I was obliged to abandon this mode, and obtaining from Mr. Wightman a conical glass tube, I inserted a saturated sponge in the larger end, and she breathed through that. In this way she seemed to be in an unnatural state, but continued talking, and refused to have the tooth extracted. I made her some trifling offer, to which she assented, and I drew the tooth, without any indication of pain on her part, not a muscle moving. Her pulse was at 90, her face much flushed, and after coming to, she remained a long time excessively drowsy. From this experiment, I became satisfied of what is now well proved, that consciousness will sometimes remain, after sensibility to pain is removed.

I afterwards gave it to a Miss L., a lady of about twenty-five. The effect upon her was rather alarming. She sprang up from the chair, leaped into the air, screamed, and was held down with difficulty. When she came to, she was unconscious of what had passed, but was willing to have it

administered again, which I did with perfect success, extracting two molar teeth. After this, I tried several other experiments, some with more and some with less success, giving my principal attention to the perfecting of my modes of administering it.

When the time drew near for the experiment at the hospital, I became exceedingly anxious, and gave all my time, day and night, hardly sleeping or eating, to the contriving of apparatus, and general investigation of the subject.

I called on Dr. Gould, a physician who has paid much attention to chemistry, and told him my anxieties and difficulties. He sympathized with me, gave me his attention, and we sat up nearly all night making sketches of apparatus; he first suggesting to me an antidote in case of unfavorable effects, and the valvular system, instead of the one I then used. The operation was to be at 10 o'clock. I rose at daybreak, went to Mr. Chamberlain, an instrument-maker, and, by great urging, got the apparatus done just after 10 o'clock, hurried to the hospital, and reached the room just as Dr. Warren was about to begin the operation; he having given up all hope of my coming. The detailed account of this operation will be found in Dr. Warren's communication. There was a full attendance; the interest excited was intense, with the most eager scrutiny of the patient. When the operation closed, the patient described his state, and Dr. Warren announced his belief that there had been insensibility to pain, my feelings may be better imagined than described.

I was invited to administer it the next day, in an operation for a tumor, performed by Dr. Hayward, and with perfect success.

On the 23d October, I saw Dr. Jackson for the first time since the interview last described. I take my account of this interview from a memorandum made at the time, the accuracy of which is attested by two witnesses of the highest respectability who were present. He said he thought he would just look in, that he heard I was doing well with the ether, and learned from Mr. Eddy that I intended to take out a patent, and would make a good deal by it. I replied that it had been a cause of anxiety and expense to me, but that I thought I should now do well with it. He said he thought so too, and that he believed he must make me a professional charge for advice. I asked him why in this case, more than in any other case of his advice, arising out of our previous relations, as mentioned at the opening of this memoir. He said that his advice had been useful to me, that I should make a good deal out of the patent, and that I ought to make him a compensation. I told him I would do so if I made much by the patent, independent of what I gained in my business. He then said he should charge me \$500. I told him I would pay him that, if ten per cent. on the nett profits of the patent amounted to so much. He said he was perfectly satisfied with this arrangement, and so the interview ended.

The next morning he told Mr. R. M. Eddy what had passed, and two or three days afterwards Mr. Eddy sug-

gested to me that instead of paying Dr. Jackson a fee, I should interest him in the patent, and give him ten per cent. of the nett profits. Mr. Eddy made his suggestion out of friendship to Dr. Jackson, whom he wished to benefit. He added that the patent would thus have the benefit of Dr. Jackson's name and skill; that he would thus have a motive to give his attention to the preparation and the apparatus, and we should be able to keep in advance of the improvements that might be suggested by others. He also said that if a suit was brought, and Dr. Jackson should be a witness, as he doubtless would be, the aid he had given me might be made a handle of by persons impeaching the patent, to invalidate my claim as the discoverer. At this time the dentists had organized a formidable opposition to the use of ether, and all the medical magazines in the Union, except Boston, were arrayed against it. I felt the need of all the aid I could get, and was conscious of a want of thorough scientific education myself. I was induced by these motives to accede to Mr. Eddy's request, but did not then understand that Dr. Jackson claimed to be a discoverer at all. But on this head I refer to the affidavits of the Messrs. Eddy.

I continued administering the ether in my office, and early in November I applied to Dr. Hayward for leave to administer it in a case of amputation, which I learned was to take place at the hospital. Dr. H. J. Bigelow, in the meantime, had attended my experiments at my office, and taking a deep interest in the subject, prepared a memoir, which he read to the Boston Society for Medical

Improvement, and subsequently to the American Academy of Arts and Sciences.

The surgeons of the hospital informed me that they thought it their duty to decline the use of the preparation until informed what it was. I immediately wrote to Dr. Warren, the senior surgeon, disclosing the whole matter. The operation took place on the 7th November. About half an hour beforehand, Dr. H. J. Bigelow called for me, and said he wished me to be on the spot, in case it should be determined to admit me. After remaining in the ante-room for some time, it was resolved by the surgeons to permit the experiment, and I administered the ether with perfect success. This was the first case of amputation. *I will also remark, that Dr. Jackson was absent from the city at this time, and knew nothing of the operation.*

On the 21st November, I administered the ether in an operation for a tumor, at the Bromfield House, in the presence of a number of medical gentlemen, among whom I noticed Dr. Jackson. *This was the first time he had seen it administered, and no one but myself had administered it in Boston or elsewhere, to my knowledge. In this instance Dr. Jackson appeared merely as a spectator. On the 2d of January, 1847, he did the first act indicating to the surgeons that he had any interest in the subject. On that day he called at the hospital with some oxygen gas as an antidote for asphyxia, which he heard was produced by the ether. But before this time the surgeons had satisfied themselves that asphyxia was not produced. With the single exception of an intimation to Dr. Warren, which was after its establishment at the hospital, and which ap-*

pears in his communication, none of the surgeons or other persons engaged in these experiments had received any idea, from Dr. Jackson himself, or from his conduct, that he was in any way connected with this discovery, responsible for the use of the preparation, entitled to the credit of its success, or liable to the odium of its failure. If death or serious injury had occurred to any one, Dr. Jackson could not have been in the least degree implicated. It was not until the danger was over, and success certain, until the discovery had arrested the attention of the world, until the formidable opposition of the dentists and of all the medical magazines and societies in other places had become powerless, that Dr. Jackson began to involve himself in it, and that his claim to have anticipated the effects, and communicated them to me, was brought forward.

On the 19th October, as soon as I felt confident of success, I addressed a note to my former partner, Dr. Wells, informing him of what I had done, and asking him to come to Boston and assist me in bringing the discovery into use in dentistry. He replied by letter in the appendix, of Oct. 20, 1846. He came to Boston, saw several experiments in my office, expressed himself alarmed, said I should kill some one yet, and break myself up in my business. He left abruptly, but without intimating a claim to the discovery, although he could recognize the ether, and was freely told that it was ether. *I have also the authority of Dr. Warren and Dr. Hayward, for saying that no allusion was made by Dr. Wells to ether, to their knowledge, when he made his experiment in Boston, in 1844-5.*

I am aware that a communication to an institution whose objects are scientific, and not personal, gives me no right to argue the question of my own claim to a discovery, in opposition to the claims of others. I have endeavored to state no facts but such as fairly illustrate the history of this demonstration. If these have any bearing upon the claims of others, I am entitled to the benefit of the effect. But this memoir is not intended to present the whole of my comparative rights, as against the claims of Dr. Jackson or Dr. Wells. If a tribunal were opened for such a discussion, I would most cheerfully prepare for the hearing, and submit myself to the judgment, of any enlightened umpire. I have proposed such a course to Dr. Jackson, who has declined it.

In justice to myself, I should say, that I took out my patent early, before I realized how extensively useful the discovery would be, and beside the motive of profit and remuneration to myself, I was advised that it would be well to restrain so powerful an agent, which might be employed for the most nefarious purposes. I gave free rights to all charitable institutions, and offered to sell the right to surgeons and physicians for a very small price, such as no one could object to paying, and reasonably to dentists. I had little doubt that the proper authorities would take it out of private hands, if the public good required it, making the discoverer, who had risked reputation, and sacrificed time and money, such a compensation as justice required. But as the use has now become general and almost necessary, I have long since aban-

doned the sale of rights, and the public use the ether freely, and I believe I am the only person in the world to whom this discovery has, so far, been a pecuniary loss.

Most respectfully, your obedient servant,

W. T. G. MORTON.

Boston (U. S. A.) , July 31, 1847.

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Morton, W.T.G.

Memoir on sulphuric
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